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XIX. *Observations on the modern method of inoculating the small-pox, by the same.*

Read at the COLLEGE, SEPTEMBER 19, 1771.

SO much has already been written concerning the modern method of inoculating the small-pox, and the peculiarities of it in its several steps and stages, that it seems at this time unnecessary to enter into a particular detail of a practice, which is now not only distinctly known by Physicians, but is almost become a matter of public notoriety.

The process has been generally this.

I. The subjects have been prepared by a very abstemious diet, and by a mercurial purgative given and repeated, previously to the infection,

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and in the interval between the infection and the beginning of the variolous fever.

II. THE infection has been communicated by means of a slight elevation of the cuticle raised by a lancet infected with crude matter, in a fluid state.

III. POWERFUL purgatives have been occasionally given, during the fever, previous to the eruption; during the period of eruption; and even after its completion.

IV. THE free use of fresh air, and a very cool regimen, have been strenuously recommended.

ABOUT the time when the great success of this method began to be the subject of popular conversation, a report was likewise propagated of as uncommon a failure of inoculation, among the inhabitants of a considerable town in the county of Dorset.

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Having esteemed a particular inquiry into the truth of these representations well deserving my attention, I found, that in the counties of Essex, Norfolk, and Suffolk, many thousands of people, of all ages and constitutions, and some of them under every apparent disadvantage, had been inoculated, with general good success; whereas, at Blandford, out of 384 persons, who were inoculated, 13 actually died, and many others narrowly escaped with their lives, from the confluent small-pox. These facts having been ascertained, I was of course led farther to inquire into the probable causes and occasions of events so very different. And having examined how the patients had been respectively treated, I could not hesitate in determining, that the good success on one side, and the misfortunes on the other, were to be referred to no other cause than to proper

and improper management. Fresh air, cold water, acid liquors, and purgative medicines, had been uniformly insisted on by those, whose practice had been warranted by successful experience; whereas it appeared, that the inoculated at Blandford had been confined in their beds under a warm regimen; and that the whole process of their cure had evidently tended only to aggravate their disease. “ I do not believe,” says M. Gatti, speaking of these two facts, “ that there is to be found, in the history of inoculation, another instance of so great a difference in the success of that practice *.” And his conclusion is, “ that so considerable a difference in the success cannot have been the effect of accident ;

* Nouvelles reflexions sur la pratique de l'inoculation, par M. Gatti, Médecin-Consultant du Roi, et Professeur en Médecine dans l' Université de Pise, p. 12.

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“ and that the cause of it cannot possibly have been other, than the difference of the method.”

UNDER the influence of the same opinion, I published the result of my inquiries, as far as they had then been carried. My view was, to excite the attention of others to a course of proceeding, from which, as I imagined, considerable benefit might be reasonably expected to accrue to society. And that very important benefits have accordingly been derived from it, will readily be acknowledged, when it is known, that inoculation, which was heretofore in a manner confined to people of superior ranks, is now practised even in the meanest cottages, and is almost universally received in every corner of this kingdom. It cannot therefore be doubted, but that many valuable lives have hence been saved to the community. On the other hand, it would argue an unjustifiable

partiality in favour of our modern inoculators, were we to dissemble, that their practice has not in all respects been free from error; and that unfortunate events have not, in particular instances, brought it into discredit. My intention therefore, in this paper, is, in some measure, to supply, from farther observation and experience, what was defective in my former publication; and to point out what parts of this method are evidently liable to objections, and what parts deserve to be considered as real improvements, and worthy to be adopted.

I. LET it then be the first object of this inquiry, to examine how far a general plan of preparation, indiscriminately, or at least, with very little variation, applied to persons of all ages and constitutions, and in every season of the year, may be justifiable
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by experience. And here it will appear, upon the authority of certain facts, that such a general preparative method, although it has been attended with more success than could reasonably have been expected, has not always been practised with impunity. Several histories of cases, which I have collected, both from my own observation, and that of others, abundantly shew, that the preparation itself has sometimes produced unkindly effects; that persons of tender habits have suffered greatly from the repeated use of strong purgative medicines, added to a severe course of abstinence; and that, in a few instances of children, convulsions, and even death itself, have been the consequence of this treatment. Such indeed are the effects, likely to be produced in this practice, whenever the disease is prescribed to, and not the patient. It may be as necessary to support

support the strength of some constitutions, as to lessen that of others. The same method and medicines cannot rationally be opposed to firmness, and to relaxation; to superfluity, and to defect; to a man of strong, elastic fibres, and dense blood, and to a weak, hysterical, cachectic woman. But this argument needs no illustration. Experience has sufficiently shewn the truth of it in the subject now before us.

It is no new opinion, that mercury has certain specific powers, capable of counteracting the variolous poison, and of lessening its malignity. Physicians, who attend hospitals, have frequently observed the small-pox to be particularly mild in those patients, who have happened to receive the infection soon after a mercurial ptyalism: and inoculation is said to have been a much more successful practice in some of our american colonies, since the use of calomel has been there intro-

introduced into the preparative regimen. The result of my observations on this subject is, that in cases, where there is no particular objection against the use of calomel, it may be considered as an useful evacuant; and that a few grains of it may be properly given with a view to cleanse foul bowels. Boerhaave's idea on this subject seems to have been little more than speculation and conjecture; nor indeed, if the fact be really true, (which however is disputed) that the small-pox, ensuing upon a mercurial ptyalism, is generally a slight disease, does it follow, that such an effect is to be ascribed to any particular qualities of mercury; since it may be referred, perhaps with an equal degree of probability, to the mere evacuation only. This idea is consonant with Dr. Mead's opinion, who observes, that this disease is generally mild, whenever it is contracted soon after

after some great evacuation, natural or artificial. The instances, which he mentions, are, persons in general after any acute disease; women after lying-in; and salivated patients in the hospital. These he speaks of as cases quite parallel; nor, in the latter, does he attribute any antivariolous efficacy to mercury. His inference is simply this: — *indiciū certe satis manifestum, quancunque materiæ diminutionem, fomitem igni subtrahendo, huic morbo apprime convenire* *. In a word, comparative trials have been made with sufficient accuracy: mercury has been used, and has been omitted, in an equal number of patients, nearly of the same age, and under similar circumstances, previously to inoculation: and the result of these trials has by no means been decisive in favour of mercury.

* Mead, de Variolis, cap. iv. p. 71.

IT is the opinion of M. Gatti, that a person, in a good state of health, needs no preparative for inoculation. This proposition, although supported by that author with his usual ingenuity, should seem to be too general. For, according to an old observation, consummate health is very apt to border on its contrary ; and it is often seen, that men of the strongest habit of fibres, and the most plethoric health, are the greatest sufferers under the attack of an acute disease. We cannot perhaps define, with a philosophic precision, on what circumstance depends a disposition to a mild kind of small-pox. But, are we to make no use of the knowledge, which we derive from observation, because it is a limited knowledge ? If we appeal to the authority of those, who were the first writers on this disease, we find them very solicitous to prepare their patients

patients against it, whenever it was epidemic *. With this intention therefore they prescribed a cooling diet, and lenient purgatives, forbidding every thing, which might seem likely to quicken the motion of the blood, and increase heat. From the time of the Arabian writers down to that of the introduction of inoculation into this country, we find very little said concerning preparation. It did not however escape the sagacity of our countryman Sydenham, that great advantages might be obtained by it; for he testifies in express terms, that a purgative medicine, twice or thrice repeated before the accession

* They advised, that young persons should be always kept prepared during the spring and winter. They had an idea, that by their management, if timely applied, they had a power even to extinguish the disease, and prevent any eruption; or at least to insure the pustules being *debiles & paucæ*.

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of the variolous fever, had, in his opinion, frequently contributed to render the subsequent disease mild. It will indeed readily be granted, that, since the æra of inoculation, too much has often been done in this particular ; that practitioners have been led into error by their abundant caution ; and that dangers have been multiplied by the very means calculated to prevent them. But it will be remembered, that objections against the abuse of a practice will not avail against the proper use of it ; and that the success of every method of cure depends on the discrete, just, and seasonable application of it.

SINCE then we have two opinions concerning a point of medical practice, so opposite and contradictory to each other, a prudent physician will guard himself against an hasty attachment to either party. The greatest security

security will probably be found between the two extremes. For, on one hand, there are many persons, who, previously to inoculation, have undergone great evacuations, and a strict course of abstemiousness, not only with impunity, but apparent advantage. On the contrary, the same method has produced in other persons very different effects. It has only added to their natural weakness, and rendered them less fit subjects for the small-pox. The practice of physic rarely admits of any perpetual precepts; and he will be very apt to err, who will not, as he may find occasion, deviate from authorities, and follow the dictates of his own judgment and discretion, as they arise from the case before him.

II. WITH respect to the mode of communicating the disorder, here our modern inoculators have introduced,
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or revived rather, what must be acknowledged to be a very considerable improvement. How it happened, that the original and most simple use of the needle did not take place with us from the very first, I cannot say : certain it is, that inoculation never received the smallest advantage from any of the refinements of art ; nay, the formidable apparatus of ointments, and plaisters, and bandages, did in all cases add to the inconveniences of the disease, and in some, aggravate its symptoms. It is a well-known fact, that even slight incisions in the skin, when thus treated according to art, have degenerated into troublesome sores of long continuance, and of difficult cure. It is likewise observable, that the erysipelatous rash, which, beginning at the arms, used frequently to spread itself over the whole surface of the body, and which was apt to return from

time to time in successive crops, is now seldom or never seen under the modern management; nor are inflamed eyes, or suppurations of the lymphatic glands, in any degree so frequent as formerly. Let me add, what appears to be an advantage of no trivial importance, that we cannot now be at a loss to determine with certainty, whether or not the patient be secured from future infection. This was far otherwise, while plasters were applied to the incisions. Some skins being impatient of all such applications, an inflammation and a consequent discharge were not uncommonly produced, even where no infection had been communicated; and on the authority of this deceitful appearance, persons were pronounced free from all danger, who afterwards fell victims to the disease. Whether or not there be any real and essential difference between the effects of the
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crude and the ripe matter, it is not easy to determine. There does not, however, appear to be any reasonable objection to the use of the crude matter ; nor is it an improbable supposition, that some advantages may arise from it.

THAT the matter more certainly takes effect, when it is applied in a fluid state, seems generally to be allowed. And this apparent novelty may be supported by the authority of antient usage ; for we are informed by the earliest writers on this subject, that the Grecian woman, who practised inoculation at Constantinople, was attended by a servant, who brought the matter fluid in her bosom. Mr. Holwell likewise testifies, that the same method prevails among the Bramins in India. And we are also informed, that the people of Tripoli, who are destined to inoculation, are carried to the houses of

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those, who have the small-pox, in order that they may immediately receive the fluid matter, fresh from the pustules.

BUT the present method is likewise attended with another practical improvement ; for, by a daily and attentive observation of the parts, to which the poison has been applied, the experienced practitioner is enabled not only to view the natural progress of the infection, but likewise to conjecture, with some degree of certainty, concerning the quantity of the future disease. During the time when ointments, and plaisters, and bandages were in fashion, every appearance on those parts was uncertain and uninformative ; every possible prognostic, which could be founded on it, was precarious.

III. With respect to the general treatment of the small-pox, from the
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commencement of the fever to the maturation of the pustules, here likewise our modern inoculators have opened a large field for medical improvement. For, not contented with being inactive spectators of the progress of the disease, they have ventured to administer purgatives, even of a powerful nature, and to repeat them more or less often, as the occasion may have seemed to require. Whether or not they ought to be considered as the original authors of this method, it is not material. The same certainly was some years since recommended by a Physician in a *treatise on the small-pox*; but he had not sufficient reputation in the medical world, to give authority to novelties in practice. Be this as it may, it is now sufficiently evident, that this method of purging in this stage, under particular circumstances, may be followed beneficially to the patient.

What a contrast then does there appear between this method of treating the small-pox, and that which had generally prevailed, established by the practice of the most able physicians ! Was it not usual with them even to promote a costive state of the bowels through the whole disease ? And has it not been made a matter of doubt, whether or not even a clyster might be administered with impunity ? It is to be suspected, therefore, that the old doctrine, “ nature cures diseases,” — “ nature is the surest guide,” &c. may in this, as well as in some other instances, have led practitioners into a dangerous error. As it appeared to be the design of this much-celebrated intelligent power within us, to expel a load of mischief from the center to the circumference of the body, it was held to be the duty of the physician to co-operate with that design. Upon this principle, medicines were applied,
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under the title of diaphoretic and alexipharmac, some of which fortunately are mere inactive substances, others, as experience has shewn, are too capable of doing mischief. Because a copious perspiration had frequently been observed to precede a mild and distinct kind of small-pox, a conclusion was too hastily made from hence, that, in order to insure safety, no more was required, than to promote a *diaphoresis*. But this proved to be a fallacy ; and an imitation of nature, under a misapprehension of her motions, was attempted by means which tended to counteract and embarrass them. That natural and unsolicited perspiration, which is regarded as a prognostic sign of a mild and distinct small-pox, may be observed not to break out, untill the fever has in some measure subsided. Hot medicines therefore, applied before this crisis, must ac-

celerate the blood's motion ; and so may serve only to prevent perspiration ; or if, being continually taken, they do succede in forcing out sweat, such sweats are found at least to be unprofitable. In either case, the eruption is likely to be precipitated ; and the patient to be in a worse condition than if he had not had the assistance of art. The true way then of following the dictates of nature, in this case, is to endeavour to assist her in moderating the fever ; and a beneficial perspiration will in general be best attempted by antiphlogistic medicines, and a cool regimen.

IF it be objected to what is here written, that there are, in this country, several successful inoculators, who confine their patients, sweating, in bed, during the whole eruptive fever ; I answer, that it is the good fortune of inoculation very often to prosper even in the most unskilful hands, and under

der the worst management ; but no accidental success can in this instance be properly urged as an argument in justification of a practice, opposed to reason and general experience.

THE eruption being completed, particularly when the pustules are numerous, anodynes are usually given. And here let me take occasion to observe, that Sydenham seems to have shewn too great a partiality in favour of his *liquid laudanum* ; and that there is reason to suspect, that his doctrine has, in this particular, been sometimes too implicitly followed. For, if experience has shewn that important advantages have arisen from the belly being kept in a soluble state, it must follow, that a medicine, the ordinary effect of which is to occasion costiveness, must have its inconvenience. Besides, it is often seen in certain constitutions and subjects, that opium, whether given in a small or a large

large dose, does not cause sleep, but, on the contrary, even increases anxiety and restlessness; and, if it should stupefy the nerves, so as to render them less sensible of pain, such a temporary relief is sometimes dearly bought by the patient, whose head is confused, whose respiration becomes more difficult, whose spitting is checked. I would not be understood to mean, that these are constant effects of opium, given in the small-pox; and I am very far from subscribing to the opinion of the ingenious M. Tissot, who, in his epistle to Mr. V. Haller, *de variolis, apoplexia, et hydrope*, condemns the use of opium in this disease universally and without exception. For we sometimes, at least in this country, meet with tender and irritable habits, which require the assistance of such a medicine, and are relieved by it. In such cases, if some of the inconveniences, above-

above-mentioned, do happen, the advantages, gained by a precious interval of ease, will sometimes be found to be more than an equivalent.

BUT I would speak something further of the use of purgatives, not only in respect of the disorder before us, but more generally. Should it not seem then that the beneficial effects of them, in this and other eruptive diseases, result chiefly from that peculiar relation, which is observable between the affections of the skin and the intestines? The perspirable matter, checked suddenly, and thrown back upon the constitution, is in all cases very apt to affect the bowels; and, *vice versa*, I have more than once known a *diarrhœa*, which has resisted other remedies, yield intirely to the use of a warm bath. If, upon this principle, purgatives, under certain restrictions, were more generally given, physicians perhaps would be more

successful in their treatment of some other fevers, attended with eruptions on the skin. I am convinced by experience, that the prudent application of this practice to the millary fever has been of singular advantage: and it is worthy of observation in this place, that the symptoms of the measles are often rendered less formidable, when, during this disease, the patient has every day two or three evacuations by stool. Nature herself frequently points out in what manner she ought to be relieved, by raising a spontaneous *diarrhœa*; and experience has shewn, that the discharge is salutary, and cannot be restrained with security. I have even reason to think, that the dangerous peripneumony, consequential to the measles, is by no means so effectually to be prevented, as by the method of cure, which is here suggested.

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BUT, as every powerful remedy is, by the abuse of it, convertible into a powerful poison, this method of purging in the small-pox has, in many instances, been productive of mischief, which has surely arisen from the want of judgement and discrimination in some of our inoculators. I have collected many histories of cases on this subject; from whence it appears, that various are the ill effects, which have been produced by the indiscrete use of purgatives, given with a view to suppress and repel the eruption. The most common, as well as the most fatal of these ill effects, is a consumption of the lungs. The late Dr. Blanshard informed me, that out of ninety persons, who had been inoculated in one village, ten died consumptive, soon after their recovery from the small-pox; three only of which number had shewn any disposition to diseased lungs before their

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inoculation. Upon inquiry, he learned, that all these people had taken strong purgative medicines, as well through their preparative course, as through every stage of the disease. The same gentleman shewed me two instances of a *gutta serena*, most probably from the same cause. This ill-judged treatment has likewise not unfrequently been the cause of various disorders of the hysterical and spasmodic kind; of dropries; and of the most obstinate pains in the limbs. To this account may be added various eruptions on the skin, particularly pustules resembling those of the small-pox; and abscesses in various parts of the body; all seeming to indicate, that the constitution, forced from the ordinary manner of relieving itself, makes every irregular struggle to shake off its oppression, and to dislodge the enemy by any means, and at whatever expence and hazard.

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Several cases have occurred to myself, which have seemed to justify such a reflection; and from many parts of this kingdom, in which I have had an opportunity of inquiring, I have received accounts corresponding entirely with what has been here represented; and yet certain it is, notwithstanding, that the misfortunes, which have attended this modern mode of inoculation, have been greatly over-balanced by its general success.

It appears then from what has been premised, that the use of purgatives, regulated by discretion, is capable, under certain circumstances, of lessening the violence, and averting the danger, of the small-pox. It appears likewise, that the same medicines, given injudiciously with respect to time or quantity, and without due attention to the strength and habit of the patient, have produced very ill effects. In so critical a situation,
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by what rules shall the physician determine his conduct? By none, which can easily be described. Here therefore especially, is the use and importance of a man of skill, deliberation, and judgement. Such an one will make it the first object of his consideration, how far it may be necessary or expedient to do any thing, which may possibly interrupt the progress of the disease; and whether the whole business may not more safely be committed to nature. Should he find reason for attempting to lessen and retard the eruption, he will not have recourse to any prescribed form of medicine; but will endeavour to accommodate his remedies to the age, sex, constitution, and other peculiar circumstances of the patient. In a disease, which is subject to such a variety of *phænomena*, to be confined to any established method of cure, would

would be as irrational, as to be guided by no rule, no method at all.

IV. The great benefits, which persons, under the process of inoculation, derive from the free use of cold air, were the principal object of my pamphlet formerly published. And here it would argue the utmost want of candour in us, not to acknowledge, that physic is greatly indebted to our modern inoculators. If it be objected to them, that, in this respect, they have introduced nothing of novelty; for that Rhazes and the other Arabian physicians, whose writings are come down to us, both taught and practised the cold regimen, according to the most extensive signification of the words; and that our own countryman Sydenham, having, as he himself testifies, found the medical world divided between patrons of the hot, and of the cold method,

zealously attached himself to the latter opinion ; yet let it be remembered, first, that as to what regards the Arabians, reasons, apparently plausible, were objected to the imitation of their practice ; namely, that it was well adapted to the warm countries, in which they lived, but would be very injudiciously followed in our northern climate : and, with respect to Sydenham, it is manifest, even from his own words, that, in his general practice, he fell short of his principles and persuasion, and was restrained by the obloquy of his contemporaries from openly pursuing a plan, which, in his private judgement, he heartily approved. And it is as certain, that from the time of Sydenham, down to that of the introduction of the modern improvements, the antiphlogistic method of treating the small-pox was in reality, and in submission to the prejudices
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and tenderness of women and friends, more talked of by physicians, than prescribed ; more praised than practised.

It is however to be lamented, that the liberty of using fresh air has been exercised in too free and unlimited a manner, sometimes for the patients themselves, but generally for the neighbourhood and community. The contagion has thus been propagated : the unsuspecting and the unwary have been surprized with the disorder, and have suffered ; and a practice, so beneficial to individuals, has, in many instances, become detrimental to society. This evil, and that other of country-practitioners, who have opened houses of reception in or near large towns, I shall content myself with having mentioned. I fear it cannot be remedied, unless by the interposition of the legislature.

FROM this free, and, I hope, fair examination of the merits of our modern inoculators, we may draw the following conclusions.

FIRST, when we consider to how full a diet (consisting principally of gross, heavy, unctuous, animal food) the people of this country are accustomed, we cannot doubt of the general utility of a short course of abstemiousness, as a preparative for the small-pox. And, upon the same principle, we may conclude, that the several purgatives, given at this time, have contributed their part to the general success of the practice. If this method of preparation has sometimes seemed not to have been attended with good effects, our censure ought to fall, not on the method itself, but on the misapplication of it in particular instances.

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SECONDLY, These operators have derived singular advantages from the manner of communicating the infection, which they have practised.

THIRDLY, They have introduced the use of purgative medicines, with a view to abate the fever, and lessen the eruption. And although the indiscriminate application of the same method has, as might have been expected, in some cases, done mischief, yet physicians, in this respect, may even from the errors of these men, derive useful instruction to themselves.

FOURTHLY, They have experimentally shewn, that fresh air, if it be not an antidote to the variolous poison, is the great preservative against the dangers, which frequently attend the small-pox.

FIFTHLY, They have proved, that the idea of the possibility of accumulating the infection of the small-pox (an idea which prevailed long, and which appears to have been strenuously maintained by Mead) is wholly without foundation; and that, when the poison has once affected the skin, the patient is secured from any farther degree of contagion. This they have satisfactorily proved by their custom of admitting, without the least scruple, and with impunity, persons, who come to their houses, in order to be inoculated, into the company of their variolous patients, sometimes several hours before the matter is inserted. From the same custom we may likewise deduce the following very curious truth, *viz.* that the small-pox, by inoculation, out runs and anticipates accidental infection. This truth is still more confirmed by a remarkable case, which

which once happened within my own knowledge ; and again, lately, in the practice of Dr. Watfon, with little or no variation of circumstances. A poor woman, who had an infant at her breast, was seized with the small-pox, which proved confluent. On the fourth or fifth day after the eruption, the child was inoculated, and, at the usual time, had the disease, and passed through it without danger or difficulty. The mother, in both cases, died.

BEFORE I finish this paper, I beg leave to add a few words concerning the inoculation of pregnant women, and of infants at the breast. The small-pox has ever been found to be so hazardous a disease to women, during pregnancy, that one would scarce have imagined, that in such a state, inoculation could ever have been thought of, except only under circumstances of extreme necessity.

And yet even in this situation it has been advised, nay sometimes practised with safety. But, it should seem, that nothing less than a multiplicity of successful experiments can justify this practice. And as it does not appear, that a sufficient number of such successful experiments have as yet been made, we may at present be allowed to reason on the subject. Is it not then generally observable, in the case of pregnant women, that the pulse is quicker and fuller than natural; and that they are liable to be hot, thirsty, costive, nay to become feverish on the slightest occasions? Does not the blood, when drawn from their veins, exhibit those appearances (whatever may be the cause of them) which are usually found to attend inflammation? Is not the general irritability of the habit considerably increased, during pregnancy? And lastly, is not the natural small-pox, when it happens

happens to a pregnant woman, found by experience to be more than ordinarily formidable? These are considerations which render the expediency of inoculation, under such circumstances, greatly questionable; and it should seem to be an act of temerity to recommend it, with any view, except only to prevent a greater evil, which might otherwise probably be immediate, and unavoidable. Several unfortunate cases have been reported to me, which shew this practice to have been attended with extraordinary danger, more especially to the *fœtus*. I set down the following, because the event fell under my own observation. An healthy young woman was inoculated in the sixth month of her pregnancy. The pustules appeared at the usual time, and in moderate numbers; and nothing untoward happened, until the evening of the fourth day from the eruption. She
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was then seized with symptoms of a premature labour; and a sudden and violent hæmorrhage following, she very soon died convulsed.

DR. Mead speaking of pregnant women having the small-pox, ventures to assert, that, “if there be no miscarriage, the child will be free from the disease during his whole life, unless he happen to be born before the pustules are come to maturity *.” This assertion is not confirmed by later experience; nay, the reverse of it is proved to be true by the following undoubted fact. Two pregnant women, having been inoculated, had the small-pox in a very favourable manner; and afterwards brought forth their children, perfectly healthy, at the usual time. Both these children, when they had attained the age of about three years, were

* Mead, de Variolis, cap. iv. p. 66.

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inoculated with effect, and had a moderate eruption.

THIS general position of Dr. Mead being thus shewn to have no foundation, it would be of importance in the practice of inoculation, if we could go farther, and ascertain whether or not a child in the womb be liable to the small-pox. Dr. Mead * has taken the affirmative side of this question; and has even asserted, that the *fœtus* may be infected, though the mother be free from the disease; and, in confirmation of this opinion, he relates the following history. “A woman, “who had formerly had the small- “pox, and was now near her reckon- “ing, attended her husband in that “distemper. At her full time, she “was delivered of a dead child, whose “body was intirely covered with “pustules; a manifest sign, that it

* Mead, de variolis, cap. iv, p. 66.

“died.

“died of the small-pox, before it was brought into the world.” With respect to this case, which, it is to be observed, the author relates from memory, there is great reason to suspect, that the pustules were not variolous, there being frequently seen on the skin of children, who have some time been dead in the womb, vesicular appearances, which may be easily mistaken for the small-pox, especially by one, who examines it under the influence of a pre-conceived opinion. What is here said of this case is likewise applicable to that recorded by Mauriceau *.

WHILE I am upon this subject, let me take notice of another assertion in the same chapter of Dr. Mead’s book *de variolis*, the truth of which is not proved, and which indeed appears to be founded on an oversight and misconstruction. His words are what

* Mauriceau, sur la grossesse et l’accouchement des femmes, Observation 600.

follow :

follow : “ Illud tamen auctarii loco
“ adjiciam, fieri interdum posse, ut
“ infans etiam in utero ab hac ægri-
“ tudine incolumem se expediat, eva-
“ nescantibus ante partum morbi in-
“ diciis.” In order to establish this
opinion, he refers the reader to a case
related by Mauriceau, in his book
sur la grossesse et l'accouchement des
femmes, Observation 576 ; which ob-
servation contains only the following
history : “ A woman was delivered
“ of a male child at the ordinary
“ term, herself as well as the infant
“ being in good health, notwithstand-
“ ing that, in the fifth month of her
“ pregnancy, she had the small-pox
“ in a severe manner ; of which dis-
“ ease, however, there did not ap-
“ pear on the body of the child any
“ mark, which could testify, that he
“ had been infected in the womb.”
It is evident from hence, that Dr.
Mead intirely misunderstood Mauri-
ceau ;

ceau ; and that he drew a conclusion from this history, directly contradictory to the whole tenour of it, and to the author's meaning *.

WITH respect to the propriety of inoculating infants at the breast, there are two opposite opinions ; and specious arguments are used in support of each opinion. To avoid a repetition of what has been urged on both sides, I leave this question to be determined wholly by experience. And, if I have not been misinformed, the decision will not be in favour of an early inoculation of children ; for, having been diligent in my inquiries

* The words of Mauriceau are, “ — dont il
 “ ne paroissoit aucune marque sur le corps de
 “ l'enfant, qui pût témoigner qu'il en eust été
 “ aussi lui-même infecté dans le ventre de sa
 “ mere.” — Dr. Mead's construction of these words conveys a very different idea : *Evanuerant ante partum morbi indicia*. According to the author, *no marks of the small-pox appeared* ; according to the translator, *the marks of the small-pox had disappeared*.

on this subject, I learn, that much the greatest proportion of deaths, which have happened here in London in consequence of inoculation, have happened to children under the age of two years. Of these some have died in convulsions, previous to any eruption ; but the majority of them have sunk, oppressed by an insuperable load of disease, at an advanced period of the small-pox. And yet, notwithstanding the force of this practical objection, an infant may easily be supposed so circumstanced, as not to be likely to escape accidental infection. In such a case, the apprehension of the greater danger ought, it should seem, to over-rule that of the less ; and even doubtful means of safety should be hazarded.

WHILE I have been engaged upon this subject, some points have occurred to me, upon which, as I have not been able to satisfy myself clearly,
I submit

I submit them, as matter of inquiry, to more general consideration.

Q U E R I E S.

I. SINCE it has not been supposed, that the small-pox of the Arabians, differed either in its nature or effects from the disease so called, with which we are conversant, how are we to account for the silence of Rhazes, and other Arabian writers, with respect to its two remarkable peculiarities, namely, its being communicated by contagion, and being once only incidental to the same person * ?

II. SINCE no mode of preparation has hitherto been found effectual for

* They speak of this disease, as arising from the ebullition of the blood, and particularly incident to the age between childhood and youth. Nay, it is asserted by Aaron, that it is liable to return to the same person twice or thrice, *præcipue cum sanguis sit acutus.*

reducing

reducing the natural small-pox to that degree of security, which generally attends the practice of inoculation; and since, in numberless instances, inoculation has been successful, even without the assistance of any preparative regimen; to what circumstance ought we to attribute such different effects of the same poison? Is it to be supposed, that there is a greater degree of activity and virulence in those contagious particles, which are received in the form of *effluvia*? or should it seem, that, in the natural small-pox, the poison is applied immediately to a vital, most intimate, and very sensible organ; whereas, in the case of inoculation, it is applied to a distant extremity, and of less importance in the animal œconomy? In a word, does the difference lie in the quality of the poison itself, or in the part first poisoned?

M E D I C A L

III. BEFORE the variolous poison, when inserted, takes effect, an inflammation ever arises on the place of its insertion. Where no such inflammation appears, no small-pox ensues in consequence of inoculation. The same thing is observable of another animal poison, generated, like this, by disease, namely, that which is infused into a wound made by the bite of a mad dog. Although this wound sometimes readily heals up, yet it constantly breaks out afresh and inflames, before any of the terrible symptoms appear. May it not then be supposed, that these poisons are for some time confined in the part to which they were applied, and do not enter into the habit, till, by a topical inflammation, they have shewn their powers and energy for further mischief? If such a supposition be probable, does it not, in the case of the
bite

bite of a mad dog, confirm the propriety of an obvious experiment, whether the cutting out or burning the part wounded might not prevent the effect? This has been proposed; if ineffectual, perhaps a sufficient quantity of flesh has not been destroyed; and it is natural to suppose, that such an operation may have been performed in too much haste, under the influence of a presumption that it must be useless, if not immediate; or possibly with too great tenderness for the unhappy sufferer. But if the poison be only confined in the wounded part, may not the operation be expected to be successful at any interval, provided only it be before the inflammation and other bad symptoms begin to appear? One can hardly suppose a case, in which such an experiment would be tried in the inoculation of the small-pox. But, in support of this reasoning, I am informed,

that the cutting out the parts surrounding, and at the bottom of, a recent venereal ulcer, so that none of it be left, has intirely prevented any farther symptom of the disease; the wound having healed like a common wound, without any use of mercury.